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 TITLE: Production of oxygen-ion-permeable electrically
 conductive ceramic composites
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 PATENT ASSIGNEE(S): TDK Corporation, Japan
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PATENT CLASSIFICATION CODES:

| PATENT NO. | CLASS | PATENT FAMILY CLASSIFICATION CODES |
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| JP 2005053763 | ICM | C04B035-50 |
| | ICS | H01B013-00; H01B001-08; H01M008-06 |
| | IPCI | C04B0035-50 [ICM,7]; H01B0013-00 [ICS,7]; H01B0001-08 [ICS,7]; H01M0008-06 [ICS,7] |
| | IPCR | C04B0035-50 [I,A]; C04B0035-50 [I,C*]; H01B0001-08 [N,A]; H01B0001-08 [N,C*]; H01B0013-00 [I,A]; H01B0013-00 [I,C*]; H01M0008-06 [N,A]; H01M0008-06 [N,C*] |
| | FTERM | 5G301/CA02; 5G301/CD02; 5G301/CE02; 5H027/AA02; 5H027/BA01 |

ABSTRACT:

The ceramic composites contain oxygen-ion-conductive phases made of Gd-doped cerium oxide having compns. $\text{Ce}_{1-x}\text{Gd}_x\text{O}_{2-x/2}$ ($0 < x < 0.5$) and electron-conductive phases made of spinel-type MFe_2O_4 ($\text{M} = \text{Mn}, \text{Co}, \text{Ni}$), and are produced by a process comprising steps of (1) preparing mixts. of feedstock powders (A) generating the Gd-doped Ce oxide and another feedstock powders (B) generating the MFe_2O_4 , (2) forming ceramic greens containing both A and B, and (2) firing the greens. The A may be prepared by heating mixts. containing Ce oxide and Gd oxide, while B may be prepared by heating mixts. containing Fe oxide and

≥ 1 selected from Co oxide, Mn oxide, and Ni oxide. The ceramic composites are easy to produce and are suitable for uses of fuel cell electrodes, partial oxidation of methane, and separation of oxygen from air.

SUPPL. TERM: oxygen ion permeable elec conductor ceramic composite; gadolinium doped cerium oxide ceramic composite elec conductor; spinel ferrite ceramic composite elec conductor; fuel cell electrode oxygen permeable conductor ceramic

INDEX TERM: Spinel ferrites
 ROLE: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (elec. conductive phases; production of oxygen-ion-permeable elec. conductive ceramics containing Gd-doped Ce oxide and spinel ferrite)

INDEX TERM: Ceramic composites
 (elec. conductive; production of oxygen-ion-permeable elec. conductive ceramics containing Gd-doped Ce oxide and